

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

James D. MARTIN et al

Serial No. 09/363,013

Filed: July 29, 1999



Atty. Ref.: 2920-223

Group: 3641

Examiner: G. Sanchez

For: PREMIXED LIQUID MONOPROPELLANT SOLUTIONS
AND MIXTURES

* * * * *

March 12, 2001

Honorable Commissioner of Patents
and Trademarks
Washington, DC 20231

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APPLICANTS' BRIEF ON APPEAL

Sir:

This Appeal is from the Examiner's final rejection of claims 15-20, the only claims presently pending in the above-identified application. As will become evident from the following discussion, the Examiner's art-based rejections are in error and, as such, reversal of the same is solicited.

I. Real Party in Interest

The real party in interest is the owner of the subject application, namely ATLANTIC RESEARCH CORPORATION.

II. Related Appeals and Interferences

There are no appeals and/or interferences related to the subject application.

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III. Status of Claims

- A. The following claims are presently pending in this application: 15-20.
- B. The following claims have been cancelled during prosecution to date: 1-14.
- C. The following claims are the subject of the present appeal: 15-20.

IV. Status of Amendments

An Amendment After Final Rejection is being filed concurrently herewith which merely amends the dependencies of claims 17 and 19 so as to obviate a rejection raised by the Examiner thereagainst under 35 USC §112, second paragraph. Thus, since the amendments requested to claims 17 and 19 cannot possibly be asserted to raise "new issues" requiring further search and/or consideration, it will be assumed for the purpose of this Brief that the concurrently filed Amendment After Final Rejection has been entered and that the rejection advanced against claims 17 and 19 under 35 USC §112, second paragraph, has been mooted.

V. Summary of Invention

The invention at issue relates to nondetonable liquid monopropellants. (page 4, lines 12-15.) More specifically, the present invention relates to premixed liquid monopropellants which consist of an aqueous mixture of hydrogen peroxide and ethanol. (page 7, lines 11-17 and samples C, E and F of Table I) In one especially preferred embodiment, the premixed liquid monopropellant of the present invention consists of 80% hydrogen peroxide having a concentration in water of 70%, 12% ethanol and 8% water. (page 7, lines 14-16)

VI. References of Recors

The following U.S. Patent reference has been cited to reject claims 15-20 under 35 USC §103(a):

<u>U.S. Patent No.</u>	<u>Patentee¹</u>	<u>Issue Date</u>
3,700,393	Mueller	Oct. 24, 1972

VII. The Rejection of Record

Claims 15-20 have been rejected under 35 USC §103(a) as allegedly "obvious", and hence unpatentable from Mueller '393.

VIII. Issues

- (1) Whether claims 15-19 are unpatentable under 35 USC §103(a) by virtue of Mueller '393.
- (2) Whether claim 20 is unpatentable under 35 USC §103(a) by virtue of Mueller '393.

IX. Grouping of Claims

The following claim groupings apply to the present appeal:

- (1) Claims 15-19 may be grouped together and thus considered to stand or fall together.
- (2) Claim 20 stands alone on its own merits.

X. Arguments

(1) Claims 15-19 Are Not "Obvious" from Mueller '393

The Examiner's own comments and the title of Mueller '393 say it all – namely, that the applied reference to Mueller '393 is related to *bip*ropellants, and *not* to

¹ This cited reference will hereinafter be referred to as "Mueller '393".

monopropellants.² This is a critically important distinction which should not be lightly overlooked when reviewing the patentability of the present claims.

The first three paragraphs of Mueller '393 at column 1, lines 6-40 can be summarized to relate to the following, respectively:

- (1) "... to a liquid *bipropellant* system...";
- (2) the several *disadvantages* of *monopropellants*, and
- (3) the several *disadvantages* of hydrogen peroxide per se.

In particular, in both paragraphs 2 and 3 at column 1, lines 10-40, Mueller '393 teaches that monopropellants, including those containing hydrogen peroxide, must be desensitized in order to attain safe storage and handling, and to prevent the formation of explosive mixtures. He teaches that this is done by reducing propellant energy, resulting in propellants that are less energetic and consequently inferior to bipropellants.

Thus, Mueller '393 specifically teaches bipropellants and away from both monopropellants and, perhaps more importantly, the use of hydrogen peroxide. Conversely, the claims at issue here are directed to monopropellants containing hydrogen peroxide. And, as discussed in the specification as originally filed, the herein claimed monopropellants are nondetonable.

The Board should also scrutinize the data in Mueller '393 as it teaches directly *away from* the presently claimed invention. In this regard, Mueller '393 itemizes the performance of six bipropellants in Table 1, the last two of which contain hydrogen peroxide. (Presumably, in view of the teaching away from the use of hydrogen peroxide by Mueller '393 as noted above, the inclusion of examples which include hydrogen peroxide are presumably for comparison to the other formulations in accordance with

² The Examiner notes in the Official Action of November 24, 2000 that "Mueller '393 disclose examples of *bipropellants* (sic) systems..." whereas the title of Mueller '393 is "Liquid *Bipropellant* System..."

his teaching.) Although Mueller '393 never refers to Table 1, it is not obvious to the reader that any of these bipropellants could be reformulated as monopropellants, especially the last two, in view of his teachings cited above. Certainly, the two propellants in Table 1 containing hydrogen peroxide would be detonable if prepared as monopropellants.

Finally, Mueller's use of hydroxylammonium perchlorate (HAP) would not be acceptable as an ingredient in the present applicants' propellant compositions, because of the appearance of hydrogen chloride (or any other chlorine compound) as a combustion product. As such, the language of the claims pending herein *exclude* such components. That is, the preamble expression "consisting essentially of" employed in claims 15-19 is sufficiently broad to include components not recited in the claims *except* those that would affect the basic and novel characteristic of the product defined in the claims, as the HAP component disclosed in Mueller '393 would.³

As should now be evident, the Examiner's reliance on *In re Aller* is misplaced. That is, while *in re Aller* may in fact stand for the proposition expressed by the Examiner in the Official Action of November 24, 2000, a mere optimization of the workable ranges otherwise disclosed in the prior art is *not* what has occurred with respect to the present invention.

In view of the above, applicants submit that claims 15-19 are patentably distinguishable over Mueller '393 and hence reversal of the rejection advanced thereagainst is in order.

(2) Claim 20 Is Not "Obvious" from Mueller '393

The discussion above with respect to claims 15-19 is equally germane to the *unobviousness* of claim 20, and hence that discussion is hereby incorporated by reference. To be sure, however, claim 20 is even further patentably distinguishable

³ *In re Garnero*, 162 USPQ 221 (CCPA 1969); *Ex parte Hutchins*, 157 USPQ 167 (Bd. of Appeals 1967).

since it defines a *monopropellant* which ***consists of*** only the recited components. Thus, claim 20 defines a scope which excludes from the claimed subject matter components other than those specifically recited therein and impurities normally associated therewith.⁴ This even further, more limited scope of claim 20 distinguishes it from Mueller '393. As such, reversal of the rejection advanced against claim 20 under 35 USC §103(a) is also in order.

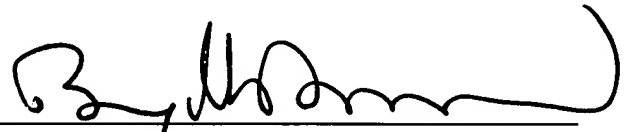
XI Conclusions

The Examiner's rejections advanced against the claims pending herein under 35 USC §103(a) are in error and must be reversed. Such favorable action is therefore solicited.

Respectfully submitted,

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⁴ *Sakano et al v. Rutemiller*, 158 USPQ 47 (Bd. of Appeals 1968).

APPENDIX

Claims on Appeal

15. A premixed liquid monopropellant which consists of an aqueous mixture of hydrogen peroxide and ethanol.

16. The premixed liquid monopropellant of claim 15, wherein the hydrogen peroxide is present at a 70% concentration in water.

17. The premixed liquid monopropellant of claim 15, wherein the hydrogen peroxide is present in the mixture in an amount between 77% to 80%.

18. The premixed liquid monopropellant of claim 17, wherein the ethanol is present in the mixture in an amount between 12% to 20%.

19. The premixed liquid monopropellant of claim 18, wherein water is present in the mixture in an amount between 3% to 8%.

20. A premixed liquid monopropellant which consists of 80% hydrogen peroxide having a concentration in water of 70%, 12% ethanol and 8% water.